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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/033,658 | 12/27/2001 | Nobuyuki Matsuo | SIC-01-017 | 7948 |

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EXAMINER


LE, DAVID D

| ART UNIT | PAPER NUMBER |
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3681

DATE MAILED: 08/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|--------------------------------------|---|
| Office Action Summary | Application No. 10/033,658 | Applicant(s) MATSUO ET AL. | |
| | Examiner David D. Le | Art Unit 3681 |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 July 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5-7 and 11-35 is/are allowed.
- 6) ☒ Claim(s) 1-4, 8-10 and 36-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>07/20/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This is the fourth Office action on the merits of Application No. 10/033,658, filed on 27 December 2001. Claims 1-40 are pending.

Documents

1. The following documents have been received and filed as part of the patent application:

- Information Disclosure Statement, received on 12/27/01
- Substitute Drawings, received on 06/23/03
- Information Disclosure Statement, received on 07/20/04

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 20 July 2004 has been entered.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. **Claims 1-4 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by**

U. S. Patent No. 4,083,421 to Van Horn et al.

Claims 1-4 and 8:

Van Horn (Figs. 1-4; column 1, line 26 – column 2, line 37) discloses a two-speed motorcycle hub transmission comprising:

- A first carrier member (52) including a first carrier member axle opening (Fig. 4) for receiving an axle (20) therethrough;
- A plurality of planet gear openings (Fig. 4; the areas on element 52, between element 58, as being mounted on element 52) for receiving a plurality of first planet gears (44) and a pinion pin opening at each of the plurality of planet gear openings for mounting a pinion pin (42) that rotatably supports a planet gear (44);
- Wherein each planet gear is entirely exposed radially (Fig. 4);

- Wherein the first carrier member axle opening is structured to allow the first carrier member to rotate relative to the axle (Fig. 4);
- A separate second carrier member (28) having a second carrier member axle opening (Fig. 4) for receiving the axle therethrough;
- Wherein the second carrier member axle opening is structured to allow the second carrier member to rotate relative to the axle (Figs. 2 and 4);
- Wherein the first carrier member is fastened to the second carrier member (Fig. 4);
- A coupler (58) for nonrotatably coupling the first carrier member to the second carrier member; and
- Wherein the coupler comprises a carrier pin that extends from a side of one of the first carrier member and the second carrier member into the side of the other one of the first carrier member and the second carrier member (Figs. 2 and 4, being pin like element that secures elements 28, 58, and 52 together).

5. Claims 1-4, 8-10, and 39 are rejected under 35 U.S.C. 102(e) as being anticipated by U. S. Patent No. 6,422,971 to Katou et al.

Claims 1-4, 8-10, and 39:

Katou (i.e., Figs. 1-2; column 3, line 49 – column 5, line 45) discloses a planetary carrier comprising:

Art Unit: 3681

- A first carrier member (2) including a first carrier member axle opening (Fig. 1) for receiving an axle therethrough;
- A plurality of first planet gear openings (i.e., Fig. 1; vicinity of element 21) for receiving a plurality of first planet gears (P1) and a first pinion pin opening (30) at each of the plurality of first planet gear openings for mounting a first pinion pin (S1) that rotatably supports a first planet gear (P1);
- Wherein each first planet gear is entirely exposed radially (Fig. 1);
- Wherein the first carrier member axle opening is structured to allow the first carrier member to rotate relative to the axle (i.e., Fig. 1);
- A separate second carrier member (1) having a second carrier member axle opening (10) for receiving the axle therethrough;
- Wherein the second carrier member axle opening is structured to allow the second carrier member to rotate relative to the axle;
- Wherein the first carrier member is fastened to the second carrier member;
- A coupler (23) for nonrotatably coupling the first carrier member to the second carrier member;
- Wherein the coupler comprises a carrier pin (being element 32);
- Wherein the carrier pin extends from the side of the first carrier member;
- Wherein the first carrier member includes a plurality of second planet gear openings (vicinity of element 22) for receiving a plurality of second planet gears (P2);

Art Unit: 3681

- Wherein the plurality of first planet gear openings is disposed on a first side of the first carrier member and wherein the plurality of second planet gear openings are disposed on a second side of the first carrier member (Fig. 1); and
- Wherein the first carrier member includes a guide rib (being the flanges 32) that engages the second carrier member.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claims 36-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katou et al. in view of U. S. Patent No. 4,187,740 to Silvestri and further in view of U. S. Patent No. 5,382,203 to Bellman et al.**

Claims 36-38:

Katou discloses all elements and limitations as set forth in claim 1 above.

Regarding claims 36-38, ***Katou*** lacks:

- Wherein the first carrier member is formed from a different material than at least one of the second carrier member and the third carrier member;
- Wherein the first carrier member is formed of a light alloy metal; and
- Wherein the first carrier member is formed of an aluminum alloy metal.

Art Unit: 3681

Silvestri (i.e., Figs. 1-4; column 2, lines 30-60), however, teaches the first carrier (120) being formed from of a lightweight metal, preferably aluminum.

Bellman (i.e., column 3, lines 7-16) teaches the advantage of utilizing different metal materials.

It would have been obvious to one of ordinary skill in the art at the time this invention was made to recognize the advantage of a light alloy metal and utilize material such as aluminum alloy in constructing a planetary carrier assembly, in view of *Silvestri* and *Bellman*, in order to reduce the overall weight of the hub transmission.

8. **Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent No. 6,010,425 to Tabe in view of Katou et al.**

Claim 40:

Tabé (i.e., Figs. 1-3, column 4, line 5 – column 6, line 67) discloses a bicycle hub transmission comprising:

- A hub axle (21);
- A driver (22);
- A hub shell (10);
- A planetary gear mechanism (24);
- A carrier (52); and
- A plurality of planet gears (53).

Art Unit: 3681

Tabé lacks:

- A first carrier member;
- A second carrier member; and
- Wherein the first and second carrier member axle openings are structured to allow relative rotation between the axle shaft and the carrier members.

Katou (i.e., Figs. 1-2; column 3, line 49 – column 5, line 45) discloses a planetary carrier comprising:

- A first carrier member (2) including a first carrier member axle opening (Fig. 1) for receiving an axle therethrough;
- A plurality of first planet gear openings (Fig. 1; vicinity of element 21) for receiving a plurality of first planet gears (P1) and a first pinion pin opening (30) at each of the plurality of first planet gear openings for mounting a first pinion pin (S1) that rotatably supports a first planet gear (P1);
- Wherein each first planet gear (P1) is entirely exposed radially (Fig. 1);
- Wherein the first carrier member axle opening is structured to allow the first carrier member to rotate relative to the axle (i.e., Fig. 1);
- A separate second carrier member (1) having a second carrier member axle opening (10) for receiving the axle therethrough;
- Wherein the second carrier member axle opening is structured to allow the second carrier member to rotate relative to the axle; and
- Wherein the first carrier member is fastened to the second carrier member.

Art Unit: 3681

It would have been obvious to one of ordinary skill in the art at the time this invention was made to modify Tabe planetary carrier such that the planetary carrier is a multi-piece type planetary carrier, in view of Katou, in order to increase the strength as well as to facilitate the ease in manufacturing this type of planetary carrier at a relatively low cost.

Allowable Subject Matter

9. Claims 5-7 and 11-35 are allowed.

Response to Arguments

10. Applicant's arguments with respect to claims 1-4 have been considered but are moot in view of the new interpretations of the applied reference, Katou'971, for the rejections as set forth above.

Also, in the remarks section, dated 20 July 2004, the additional comments regarding claims 36-38, applicant argues "it is well known that planetary gear mechanisms used in high pressure air turbine gear train assemblies, such as those disclosed in Silvestri, are subjected to extreme loads and shocks. A planetary gear mechanism constructed of a light alloy most likely would be destroyed in a short time. Clearly, there is no motivation to save a few ounces of weight in a several ton military vehicle and risk destruction of the transmission under combat conditions." Examiner respectfully disagrees with the above argument for the reason that Examiner is modifying the planetary carrier of Katou in view of the lightweight metal teaching of Silvestri.

Art Unit: 3681


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David D. Le whose telephone number is 703-305-3690. The examiner can normally be reached on Mon-Fri (0700-1530).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles A Marmor can be reached on 703-308-0830. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


ddl


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